

Small Signal Product

**Bi-directional ESD Protection Diode**

FEATURES

- Meet IEC61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  $\pm 8\text{kV}$  (contact)
- Meet IEC61000-4-4 (EFT) rating. 40A (5/50ns)
- Protects one Bi-directional I/O line
- Working Voltage : 5V
- Pb free version and RoHS compliant
- Packing code with suffix "G" means green compound (halogen-free)

MECHANICAL DATA

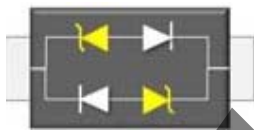
- Case: SOD-323 small outline plastic package
- Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
- High temperature soldering guaranteed :  $260^{\circ}\text{C}/10\text{s}$
- Weight:  $4.85 \pm 0.5 \text{ mg}$
- Marking code: AC

APPLICATIONS

- Cell Phone Handsets and Accessories
- Notebooks, Desktops, and Servers
- Keypads, Side Keys, USB 2.0, LCD Displays
- Portable Instrumentation
- Microprocessor Based Equipment



SOD-323



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)					
PARAMETER		SYMBOL	VALUE		UNIT
Peak Pulse Power (tp=8/20μs waveform)		P <sub>PP</sub>	350		W
ESD per IEC 61000-4-2 (Air)		V <sub>ESD</sub>	± 15		KV
ESD per IEC 61000-4-2 (Contact)			± 8		
Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150		°C

PARAMETER		SYMBOL	MIN	MAX	UNIT
Reverse Stand-Off Voltage		V <sub>RWM</sub>	-	5	V
Reverse Breakdown Voltage	I <sub>R</sub> = 1 mA	V <sub>(BR)</sub>	6	-	V
Reverse Leakage Current	V <sub>R</sub> = 5 V	I <sub>R</sub>	-	5	μA
Clamping Voltage	I <sub>PP</sub> = 1 A	V <sub>C</sub>	-	9.8	V
	I <sub>PP</sub> = 8 A		-	18.3	
Junction Capacitance	V <sub>R</sub> = 0 V , f = 1.0 MHz	C <sub>J</sub>	1.2		pF

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### RATINGS AND CHARACTERISTICS CURVES

( $T_A=25^\circ\text{C}$  unless otherwise noted)

Fig. 1 Non-Repetitive Peak Pulse Power VS. Pulse Time

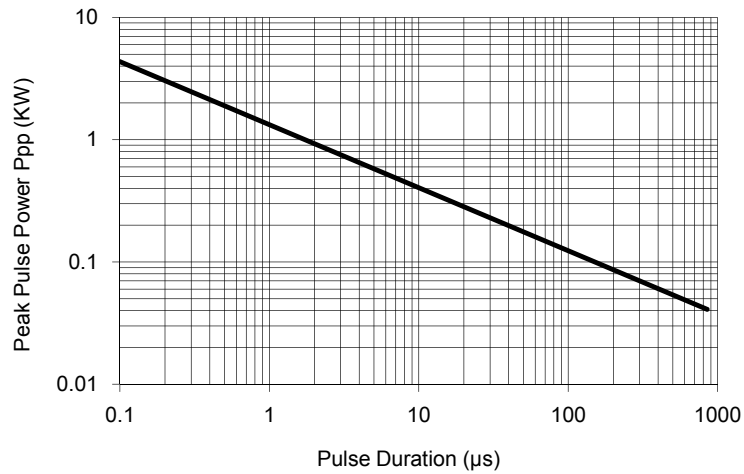


Fig. 2 Pulse Waveform

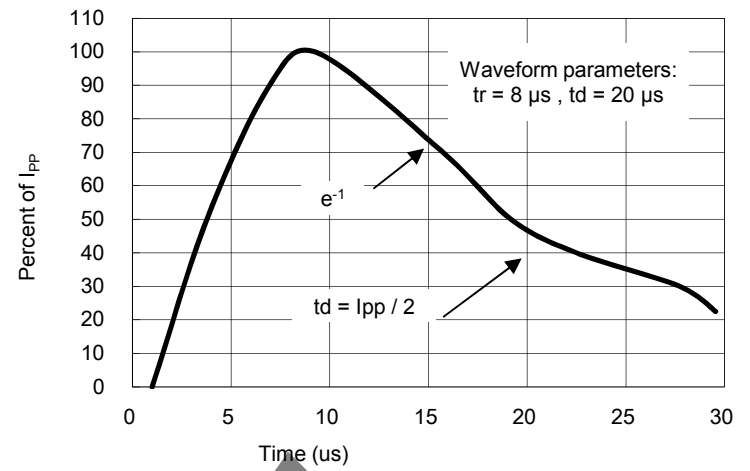


Fig. 3 Admissible Power Dissipation Curve

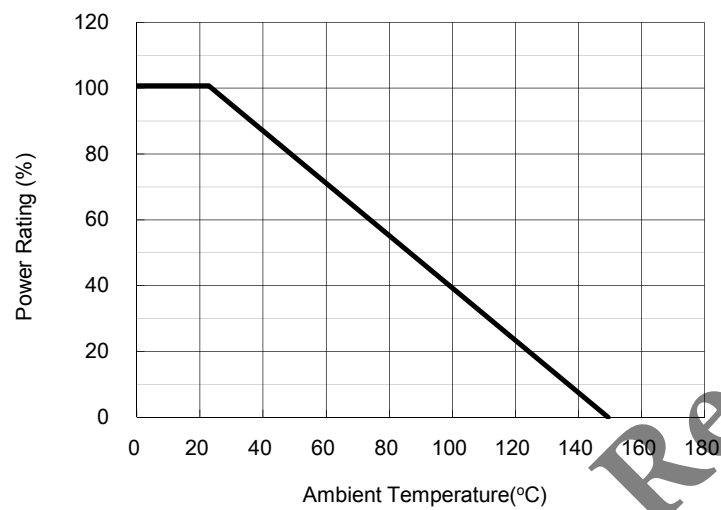


Fig. 4 Typical Junction Capacitance

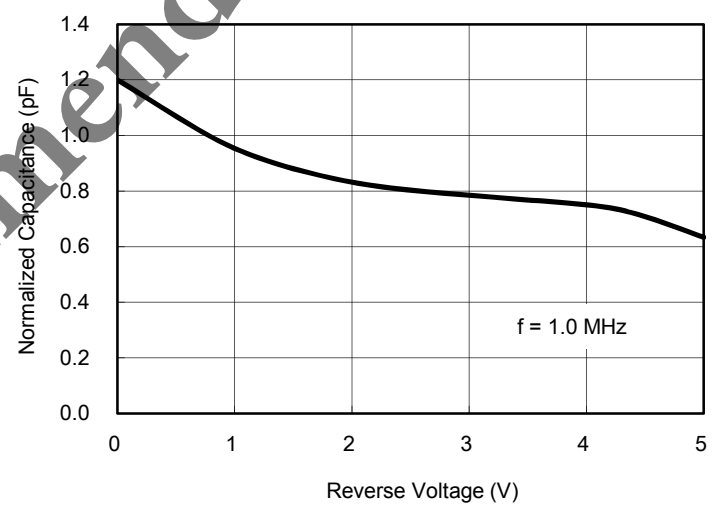
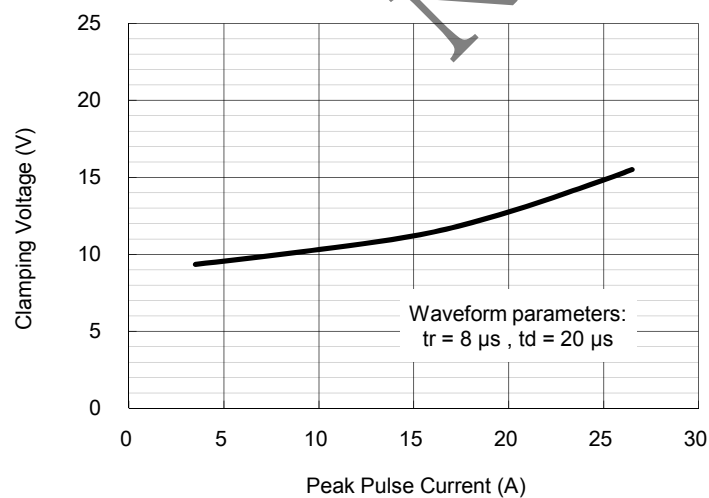


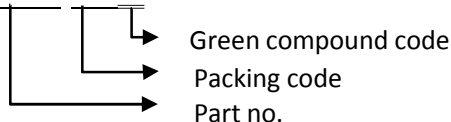
Fig. 5 Clamping Voltage VS. Peak Pulse Current



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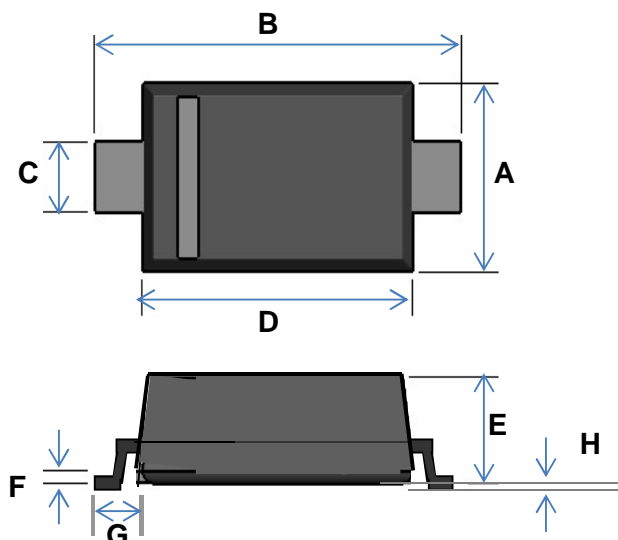
### ORDER INFORMATION (EXAMPLE)

TESDC5V0LC RRG



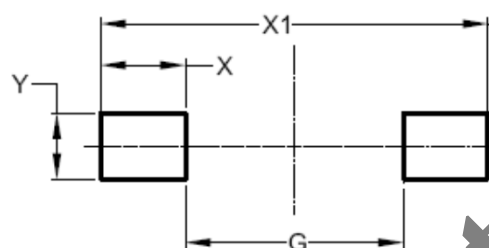
### PACKAGE OUTLINE DIMENSIONS

#### SOD-323



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.150	1.400	0.045	0.055
B	2.300	2.700	0.091	0.106
C	0.250	0.450	0.010	0.018
D	1.600	1.800	0.063	0.071
E	0.800	1.000	0.031	0.039
F	0.050	0.177	0.002	0.007
G	0.475 REF		0.019 REF	
H	-	0.100	-	0.004

### SUGGEST PAD LAYOUT



DIM.	Unit (mm)		Unit (inch)	
	Min	Min	Min	Min
G	1.52		0.060	
X	0.59		0.023	
X1	2.70		0.106	
Y	0.45		0.018	

Note: The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application.

### APPLICATION INFORMATION

- Designed to protect one data, I/O, or power supply line
- Designed to protect sensitive electronics from damage or latch-up due to ESD
- Designed to replace multilayer varistors (MLVs) in portable applications
- Offers superior electrical characteristics such as lower clamping voltage and no device degradation when compared to MLVs
- The combination of small size and high ESD surge capability makes them ideal for use in portable applications

### CIRCUIT BOARD LAYOUT RECOMMENDATIONS

- Good circuit board layout is critical for the suppression of ESD induced transients
- Place the ESD Protection Diode near the input terminals or connectors to restrict transient coupling
- Minimize the path length between the ESD Protection Diode and the protected line
- Minimize all conductive loops including power and ground loops
- The ESD transient return path to ground should be kept as short as possible

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Not Recommended

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